

Community Microcomputing

A PLAN for the Eighties

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These are times of great change. Futurists call it the information explosion.

The entire history of computing and electronic information processing is only a few decades old, yet extraordinary advances have taken place during this short span. Recent innovations in electronics are making fundamental changes not only in the technological arena, but are also having significant cultural and sociological impact.

In corporate environments, computers are no longer for the exclusive use of computer professionals; from senior management to the assembly line, employees are rapidly coming to see computers as a standard part of the office environment. Everyone from trained analysts to temporary secretarial help now needs to access information and process it electronically.

In business, a wide spectrum of individuals must share information; rarely is true "personal" data encountered in corporate situations. One person might enter the basic data, another will edit or modify it, a third produce reports or graphic displays from it. Information is typically supplied by many sources, but must be merged, managed, and distributed to be useful. Also, because information is a valuable resource, it must be protected from malicious or accidental misuse.

Traditional computing vs. new realities

Traditional multiuser computer systems, whether mainframe or minicomputer, are not well suited to this new breed of automated applications. Conventional systems require large, centralized facilities, inaccessible to the "user". They require costly support staffs. Maintenance problems make it difficult to justify new development, resulting in today's widespread applications backlog.

Conventional systems also lack the responsiveness, ease-of-use, and user-orientation of the newer desktop systems. They expect a more sophisticated, trained user, thereby limiting their applicability by the far broader class of new computer users.

Although often separated by distance, allied users must work together cooperatively. On different floors, in different buildings, or in different states and countries, fellow workers must exchange information. For them, communications are no longer a luxury; they are essential, and growing daily in importance.

This unsatisfactory state of affairs, contrasted with the benefits of personal computing, is fueling the current desktop computer revolution.

Enter Community Microcomputing™

Two recent developments, local area networking and personal computing, provide a way to address the needs of this new class of computer users. "Community microcomputing" is the merger of these two technologies; it provides the environment that answers the computing needs of the Eighties.

Community microcomputing allows a community of users to share information that resides on common peripherals. Users share common programs and data, as well as expensive, high quality equipment such as printers and disks. An individual connected to a community microcomputing system has his own dedicated personal computer, as well as a support environment for communications and for sharing of peripherals and information. Mainstream personal computers, serving as desktop workstations, provide a familiar, non-threatening setting that enhances the effectiveness of professional and clerical workers.

Such community microcomputing personal workstations must be open-ended, multi-function tools that allow word processing, data manipulation, graphics, and electronic messaging. Because business tasks can be quite specialized, all individuals in the community will not use the same type of workstation. A choice of workstations, with a strong emphasis on compatibility and data exchange capability, must be available to a company for its workers.

Community microcomputing systems must be modular, adding users, functions and new applications without major dislocations to the system as it grows. Modularity preserves the initial system investment as company needs grow and change. Accommodating simple, incremental growth ensures a long and stable future for community microcomputing systems. And through the use of a vendor-independent Personal Local Area Network (or PLAN), users can integrate newer, more cost-effective or higher performance workstations into their networks as time goes on.

For a wide range of applications, community microcomputing solutions are far more economical than conventional multi-user minicomputer approaches. Community networks are less expensive to purchase, and due to lower overhead, less expensive to operate. Fitting easily within existing office environments, community networks are less expensive to install than dedicated computer facilities.

User needs considered

More than price alone separates the PLAN solution from traditional computing systems. To achieve productivity gains, workers must accept a system, rather than resist it. Using familiar personal computers as workstations significantly aids in that acceptance. Because PLANs function transparently, the user sees the network as an extension of his own personal environment, rather than feeling like a mere "node" in a complex distributed data processing system. The user feels that he is controlling his environment, not being controlled by it. This feeling of control and individuality by the user is the single most important difference between traditional systems and community microcomputing systems.

Technology itself, then, is not the focus of community microcomputing systems. Communications networks are used in a simple and transparent fashion. Local and remote peripherals are accessed in identical fashion. This approach permits a wide range of off-the-shelf microcomputer software to be used without change. Users need not be trained programmers in order to actively and creatively use the system.

A community microcomputing system must allow all users to communicate with each other, directly or through shared information. Communications between geographically remote PLANs support the extended community. Communication gateways allow data to flow to and from major mainframe installations. In this way, community microcomputing expands the available computing alternatives, cooperating and coexisting with both traditional mainframe environments and individual (non-networked) personal computers.

Open, yet secure, communications are the hallmark of community microcomputing. Access to sensitive information is controlled through the use of passwords and encryption, while users communicate freely otherwise. Shared programs are available on a PLAN-wide basis, while complex and sophisticated access controls that meet the security requirements of the community must also be provided.

Community microcomputing is a true systems-level solution. Dedicated to the requirements of its users, the PLAN readily adapts to a rapidly changing world. In answering the challenge of information integration, however, community microcomputing systems must maintain an open and non-proprietary approach. Such systems are, and must remain, subject to the competitive pressures that serve the consumer.

Nestar Systems, Inc. is a leading supplier of community microcomputing systems which use the technology of local networking to link mainstream personal computers. Nestar currently provides full support for the IBM and Apple personal computer with hardware compatibility to ARCnet as implemented by Datapoint and Tandy.

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